

CLAIMS

We claim:

1. An isolated protein comprising a portion of SEQ ID NO:2, wherein said portion is selected from the group consisting of residues 33-75, residues 93-157, residues 203-286, residues 299-351, and residues 412-548.
2. The isolated protein of claim 1 wherein said protein is from 43 to 1600 amino acid residues in length.
3. The isolated protein of claim 1 wherein the portion of SEQ ID NO:2 comprises residues 299-409 of SEQ ID NO:2.
4. The isolated protein of claim 1 wherein the portion of SEQ ID NO:2 comprises residues 33-548 of SEQ ID NO:2.
5. The isolated protein of claim 1 wherein the portion of SEQ ID NO:2 comprises residues 20-548 of SEQ ID NO:2.
6. The isolated protein of claim 1 further comprising an affinity tag.
7. An isolated protein comprising a portion of SEQ ID NO:2, wherein said portion is selected from the group consisting of residues 93-157, residues 203-286, residues 299-351, and residues 412-548.
8. An isolated polypeptide comprising at least 15 contiguous amino acid residues of SEQ ID NO:2, wherein the at least 15 contiguous amino acid residues comprise residues 117-122, 525-530, 283-288, or 50-55 of SEQ ID NO:2.
9. An expression vector comprising the following operably linked elements:
 - (a) a transcription promoter;
 - (b) a DNA segment encoding a protein comprising a portion of SEQ ID NO:2, wherein said portion is selected from the group consisting of residues 33-75, residues 93-157, residues 203-286, residues 299-351, and residues 412-548; and
 - (c) a transcription terminator.

10. The expression vector of claim 9 further comprising a secretory signal sequence operably linked to the DNA segment.

11. The expression vector of claim 10 wherein the secretory signal sequence encodes residues 1-19 of SEQ ID NO:2.

12. The expression vector of claim 9 wherein the portion of SEQ ID NO:2 comprises residues 299-409 of SEQ ID NO:2.

13. The expression vector of claim 9 wherein the portion of SEQ ID NO:2 comprises residues 33-548 of SEQ ID NO:2.

14. The expression vector of claim 9 wherein the portion of SEQ ID NO:2 comprises residues 20-548 of SEQ ID NO:2.

15. The expression vector of claim 9 wherein the vector further comprises a second DNA segment encoding an affinity tag operably linked to the DNA segment encoding the protein.

16. An expression vector comprising the following operably linked elements:

- (a) a transcription promoter;
- (b) a DNA segment encoding a protein comprising a portion of SEQ ID NO:2, wherein said portion is selected from the group consisting of residues 93-157, residues 203-286, residues 299-351, and residues 412-548; and
- (c) a transcription terminator.

17. A cultured cell containing the expression vector of claim 9, wherein the cell expresses the DNA segment.

18. A cultured cell containing the expression vector of claim 16, wherein the cell expresses the DNA segment.

19. A method of making a protein comprising:
culturing the cell of claim 17 under conditions whereby the DNA segment is expressed; and
recovering the protein encoded by the DNA segment.

20. The method of claim 19 wherein the expression vector further comprises a secretory signal sequence operably linked to the DNA segment and wherein the protein is secreted into and recovered from a culture medium in which the cell is cultured.

21. A method of making a protein comprising:
culturing the cell of claim 18 under conditions whereby the DNA segment is expressed; and
recovering the protein encoded by the DNA segment.

22. The method of claim 21 wherein the expression vector further comprises a secretory signal sequence operably linked to the DNA segment and wherein the protein is secreted into and recovered from a culture medium in which the cell is cultured.

23. A protein produced by the method of claim 19.

24. A protein produced by the method of claim 21

25. An antibody that specifically binds to the protein of claim 1.